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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/910,792	07/24/2001	Toshihiro Yoshioka	222181/00	3010

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EXAMINER

DONG, DALEI

ART UNIT PAPER NUMBER

2875

DATE MAILED: 07/25/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/910,792

Applicant(s)

YOSHIOKA ET AL.

Examiner

Dalei Dong

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 July 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 and 21-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16, 21, 23 and 24 is/are rejected.
- 7) ☒ Claim(s) 22 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 09/910,792.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 8-10, 14-16 and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,210,468 to Yoshioka.

Regarding to claims 1, 8-10, 14-16 and 21, Yoshioka discloses in Figures 3A and 3B, "a glass substrate 1, a pair of aluminum seed discharge electrodes 2 each 0.05 mm wide are formed, defining seed discharge space therebetween, using vacuum evaporation and lithography techniques. An Al_2O_3 layer 3 is formed to 2 μm thick on electrodes. A pair of main discharge electrodes 4 of aluminum each of 0.2 mm wide is formed on the layer 3 to define a main discharge space therebetween and an Al_2O_3 layer 5 is formed on the main discharge electrodes 4 similarly on the layer 3. On the Al_2O_3 layer 5, a MgO layer 6 of 1 μm thick is formed. Then, on the layer 6, a partition wall 7, 0.25 mm high is formed using thick film techniques. Finally, a front glass 10 having a lower surface on which an aluminum write electrode 9 and an Al_2O_3 layer 12 are formed in that order, phosphor 8 is painted on the layer 12 adhered to the partition wall with a gap of 0.3 mm, and the gap is filled with discharge gas 11 of He-Xe (2%) mixture at 80 to 500 torr. Thus, an AC surface discharge type gas discharge display element is formed. In this

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case, the MgO layer 6 is used to reduce the discharge voltage since MgO has a high efficiency secondary electron emission when by bombarded ion, and the Al₂O₃ layer 5 is used to increase the breakdown voltage of the dielectric" (column 4, line 44-67).

Yoshioka further discloses in Figures 3A and 3B, "applying a 20 KHz AC pulse voltage 2 μ sec wide from a power source 14 to the seed electrode 2 and a 20 KHz AC pulse voltage 0.2 to 5 μ sec wide from a power source 13 to the main discharge electrodes 4" (column 5, line 13-16). As disclosed by Yoshioka, the upper and the lower electrodes can be at equipotential.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2-7 and 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,210, 468 to Yoshioka.

Regarding to claims 2-7, Yoshioka discloses "instead of the construction shown in Figures 3A and 3B, a construction such as shown in Figures 4A and 4B can be used in which seed electrodes 2 are arranged such that electric field formed thereby is orthogonal to that formed by main discharge electrodes 4" (column 4, line 67-68 to column 5, line 1-4). In Figures 3A and 3B Yoshioka also discloses the upper and lower electrodes are

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formed symmetrically about the center of a first sustain gap, furthermore, in Figures 4A and 4B Yoshioka discloses the center of the first sustain gap is deviated from a center of second sustain gap. However, Yoshioka does not disclose upper electrodes provided in a plurality of different layers.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have add additional layers of electrodes within the dielectric layer of Yoshioka in order to further enhance the discharge characteristics to obtain a higher discharge efficiency and lower the applied voltage of the discharge display.

Regarding to claims 23 and 24, Yoshioka discloses the claimed invention except for dielectric layer covers only portion of the electrode. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilize the dielectric layer of Yoshioka to partially cover the electrodes, since it has been held that omission of an element or part and its function in a combination where the remaining elements performs the same function as before involves only routine skill in the art. *In re Karlson*, 136 USPQ 184.

5. Claims 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,210, 468 to Yoshioka in view of U.S. Patent No. U.S. Patent No. 5,428,263 to Nagano.

Regarding to claims 11-13, Yoshioka discloses a plasma display panel comprising a substrate having a plurality of electrode pairs covered by a dielectric layer and the

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upper and lower electrodes being connected at equipotential, moreover, a second substrate arranged in opposing relation and a discharge gas filling gap between the first substrate and the second substrate.

However, Yoshioka does not disclose connecting wiring for electrically connecting upper electrode and the lower electrode. Nagano teaches in Figure 12, a connecting electrodes 13 to connect the cathode pattern 12 and the terminal electrode 3.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have utilize the connecting electrode of Nagano to connect the upper and lower electrodes of Yoshioka in order to eliminate the problem in withstand voltage and to enhance the trigger effect.

Allowable Subject Matter

6. Claim 22 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The prior art of record taken alone or in combination fails to teach a three layer electrode arrangement, wherein each layer electrodes are separated by a dielectric layer.

Response to Arguments

7. Applicant's arguments filed July 12, 2003 have been fully considered but they are not persuasive.

In response to Applicant's argument that the Yoshioka reference failed to disclose the lower and upper electrode having the "equipotential"; Examiner asserts that Yoshioka discloses the power source 13 and 14 both applies a 20 KHz AC pulse voltage to the upper and lower electrodes. Even though, the duration of pulse voltage may be different, however the during of power source 13 includes the duration of power source 14, and at a moment in time during the operation, the power source 13 and 14 will have "equipotential" rather be at zero potential to max potential of the power sources.

Also in response to Applicant's argument that the Yoshioka reference failed to disclose the upper and lower electrodes being connected electrically to each other; Examiner asserts that Yoshioka discloses a aluminum oxide layer 3 which "electrically" connected the upper and lower electrodes. Albeit, aluminum oxide layer 3 maybe a dielectric material however, few electrons still move through the layer, which in term "electrically" connects the upper and lower electrode.

Thus, Examiner asserts that Yoshioka reference is valid and maintains the rejection.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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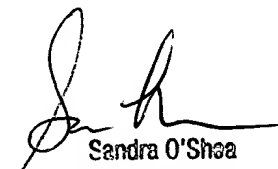
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dalei Dong whose telephone number is (703)308-2870. The examiner can normally be reached on 8 A.M. to 5 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra O'Shea can be reached on (703)305-4939. The fax phone numbers for the organization where this application or proceeding is assigned are (703)872-9318 for regular communications and (703)872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

D.D.
July 20, 2003


Sandra O'Shea
Supervisory Patent Examiner
Technology Center 2800